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10/560,959	12/14/2005	Andreas Weigl	10191/4386	1698

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EXAMINER	
DALEY, CHRISTOPHER ANTHONY	
ART UNIT	PAPER NUMBER
2111	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/560,959	WEIGL ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER A. DALEY	2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17 and 19-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17,19-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 17, 19 – 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuehrer et al (US20040228366) hereinafter Fuehrer in view of Rahul Shah & Xuanming Dong, (An Introduction to TTCAN) hereinafter Shah in further view of Kopetz (US5694542).

3. As to claim 17, Fuehrer discloses a method for exchanging messages containing data between at least two stations over a bus system, comprising: (Figure 1 illustrates a system with two stations, namely 101 and 102, connected via a bus 100, page 1, paragraph 0025);

Fuehrer does not explicitly disclose repeatedly transmitting over the bus system, by a first station, a reference message containing time information of the first station at least one specifiable time interval, the time interval being subdivided as a basic cycle into time windows, a pause period of variable duration being provided at an end of at least one basic cycle.

However, Shah teaches repeatedly transmitting over the bus system, by a first station, a reference message containing time information of the first station at least one

specifiable time interval, the time interval being subdivided as a basic cycle into time windows, a pause period of variable duration being provided at an end of at least one basic cycle (Page 9 illustrates the message frame for a plurality of packets for transmission. Within each message frame, at the start of the frame is some pause time, represented by the bus idle segment);

transmitting messages containing data in at least some of the time windows (Page 31 illustrates data such as message A , Msg. C, message D during the basic cycle); and

adapting the duration of the pause period to change a time of a start of a next basic cycle (Page 9 illustrates the message frame for a plurality of packets for transmission. Within each message frame, at the start of the frame is some pause time, represented by the bus idle segment. This bus idle time slice is variable). It would have been obvious for one of ordinary skill in the art at the time of the invention to use the TTCAN protocol of Shah in the system of Fuehrer as a TTCAN protocol was called for, page 1, paragraph 0008. One of ordinary skill in the art would have been motivated to use the protocol of Shah in Fuehrer as a TTCAN protocol was called for, page 1, paragraph 0008.

Fuehrer discloses the method wherein the time of the start of the basic cycle is corrected by shortening the duration of at least one pause period (Figures 2a-c illustrates the framing of the communication stream that comprises two variable, dynamic segments, such as 231 and 241. These pause period are used to provide variability in the communication frame. Said segments comprise a pause period as it is after the end of data frame, COL. 3, paragraph 0028.

Fuehrer is modified by Shah does not explicitly disclose determining a correction value based on a local time of a station and a cycle time, the correction value being used in adapting the duration of the pause period

However, Kopetz teaches discloses determining a correction value based on a local time of a station and a cycle time, the correction value being used in adapting the duration of the pause period as illustrated in Figure 1. Said figure illustrates a plurality of element such as FTU1 through FTUx coupled via a common bus such as 101 or 102. Figure 7 a-c illustrates the timing diagram and resynchronization of local clocks . Figure 4 illustrates the content of a ROM that contains the correction value of the clock, COL. 8, lines 13 – 40.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the clock synchronizing scheme of Kopetz in the system of Fuehrer/Shah to provide a fault tolerant process of clock synchronization, COL. 2, lines 32 - 40. One of ordinary skill in the art would have been motivated to use the clock synchronizing scheme of Kopetz in the system of Fuehrer/Shah to provide a fault tolerant process of clock synchronization, COL. 2, lines 32 - 40.

4. As to claim 19, Shah discloses the method, wherein at least two bus systems are synchronized with one another; a time of a start of a basic cycle of a first bus system is corrected by adaptation of the duration of the pause period of a second bus system.

5. As to claim 20, Shah discloses the method, wherein a pause period is provided at an end of every basic cycle (Page 31 illustrates a scheme where the end of the basic cycle is Msg. C, where a pause could be substituted, see page 30 on variation in message composition).

6. As to claim 21, Shah discloses the method, wherein a pause period is provided at an end of every 2nth basic cycle, where n corresponds to a natural number (Page 31 illustrates a scheme where the end of the basic cycle is Msg. C, where a pause could be substituted for every 2nth basic cycle, see page 30 on variation in message composition).

7. As to claim 22, Shah discloses the method, wherein a pause period is provided at an end of every 2n+l th basic cycle, where n corresponds to a natural number (Page 31 illustrates the similar ending, and page 30 allows for said variation).

8. As to claim 23, Shah discloses the method, wherein, when data is exchanged, a pause period of variable duration is provided at an end of each of at least two basic cycles, by which a change of a start of a beginning of at least one basic cycle 'is corrected by adaptation of the duration of the at least two pause periods (Page 31 illustrates a plurality of basic cycles, and the teaching of page 30 allows for combining different time slots to support said limitation).

9. As to claim 25, Shah discloses the method, wherein the correction value is determined from a first difference between two local times of the station in two successive basic cycles (Drift compensation of page 27 illustrates said limitation).

10. As to claim 26, Shah discloses The method, wherein the correction value is determined from a second difference between two cycle times of two successive basic cycles (Page 27 illustrates difference calculation).

11. As to claim 26, Shah discloses the method, wherein the correction value is determined from a comparison value formed by a sum of the time interval of the basic cycle and the second difference (Page 27 illustrates said summing).

12. As to claim 28, Shah discloses the method, wherein the correction value corresponds to the difference between the first difference and the comparison value (Page 27 illustrates said comparison).

13. As to claim 29, Shah discloses the method, wherein at least two pause periods are provided in at least two basic cycles for exchanging data, and the correction value is distributed over the at least two pause periods in a specifiable manner (Page 31 illustrates the plurality of basic cycles which allows for said configuration in pause from the attribute of page 30).

14. As to claim 30, Shah discloses the method, wherein the correction value is evenly distributed over the at least two pause periods (Page 30 allows for said distribution).

15. As to claims 31 and 32, Fuehrer discloses a device and a system for exchanging data in messages between at least two stations connected by a bus system, comprising:
a first arrangement at a first station configured to repeatedly transmit a reference message containing time information of the first station over the bus system at least one specifiable time interval (Figure 1 illustrates a system with two stations, namely 101 and 102, connected via a bus 100, page 1, paragraph 0025. This is a time controlled bus system that controls transaction between said stations, page 1, paragraph 0010);

Fuehrer does not explicitly disclose a second arrangement configured to subdivide the time interval as a basic cycle into time windows of specifiable length, the messages being transmitted in the time windows; and a third arrangement configured to provide a pause period of variable duration at an end of at least one basic cycle when data is exchanged, a start of a beginning of the basic cycle being corrected by adaptation of the duration of the pause period.

However Shah teaches a second arrangement configured to subdivide the time interval as a basic cycle into time windows of specifiable length, the messages being transmitted in the time windows (Page 9 illustrates the message frame for a plurality of

packets for transmission. Within each message frame, at the start of the frame is some pause time, represented by the bus idle segment);

transmitting messages containing data in at least some of the time windows (Page 31 illustrates data such as message A, Msg. C, message D during the basic cycle); and a third arrangement configured to provide a pause period of variable duration at an end of at least one basic cycle when data is exchanged, a start of a beginning of the basic cycle being corrected by adaptation of the duration of the pause period (Page 9 illustrates the message frame for a plurality of packets for transmission. Within each message frame, at the start of the frame is some pause time, represented by the bus idle segment. This bus idle time slice is variable). It would have been obvious for one of ordinary skill in the art at the time of the invention to use the TTCAN protocol of Shah in the system of Fuehrer as a TTCAN protocol was called for, page 1, paragraph 0008. One of ordinary skill in the art would have been motivated to use the protocol of Shah in Fuehrer as a TTCAN protocol was called for, page 1, paragraph 0008.

Fuehrer discloses wherein the time of the start of the basic cycle is corrected by shortening the duration of at least one pause period (Figures 2a-c illustrates the framing of the communication stream that comprises two variable, dynamic segments, such as 231 and 241. Said segments comprise a pause period as it is after the end of data frame, COL. 3, paragraph 0028.

Kopetz teaches discloses determining a correction value based on a local time of a station and a cycle time, the correction value being used in adapting the duration of the pause period as illustrated in Figure 1. Said figure illustrates a plurality of element

such as FTU1 through FTUx coupled via a common bus such as 101 or 102. Figure 7 a-c illustrates the timing diagram and resynchronization of local clocks . Figure 4 illustrates the content of a ROM that contains the correction value of the clock, COL. 8, lines 13 – 40.

Response to Arguments

16. Applicant's arguments with respect to claims 17, 31, and 32 have been considered but are moot in view of the new ground(s) of rejection. The Applicant has argued that" This is in stark contrast to the feature of determining a correction value, the correction value being used in adapting the duration of the pause period. In fact, the correction value of the present application does not affect a clock speed of a local time. Instead, the presently claimed subject matter involves determining a correction value to be used to adapt the duration of a pause period that affects the start of a basic cycle. This method allows, for example, for correcting the timing of a bus system after a message is transmitted with errors. The method referred to by the "Shah" reference cannot and does not correct, for example, the timing of a bus system after a message is transmitted with errors. Further, the "Shah" reference only refers to changing a local clock speed, to compensate for clock drift or to synchronize to an extemal time base. This does not disclose nor suggest the feature of providing a pause period of variable length and determining a correction value, the correction value being used in adapting the duration of the pause period. Accordingly, claim 17 is allowable, as are its

dependent claims 19 to 30. Claims 31 and 32 include features like those of claim 17 and are therefore allowable for essentially the same reasons as claim 17. In summary, all of pending claims 17 and 19 to 32 are allowable."

In response, Kopetz teaches discloses determining a correction value based on a local time of a station and a cycle time, the correction value being used in adapting the duration of the pause period as illustrated in Figure 1. Said figure illustrates a plurality of element such as FTU1 through FTUx coupled via a common bus such as 101 or 102. Figure 7 a-c illustrates the timing diagram and resynchronization of local clocks . Figure 4 illustrates the content of a ROM that contains the correction value of the clock, COL. 8, lines 13 – 40. Thus the prior art clearly teaches the feature claimed.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER A. DALEY whose telephone number is (571)272-3625. The examiner can normally be reached on 9 am. - 4p m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 571 272 3632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher A Daley/
Examiner, Art Unit 2111

/Khanh Dang/
Primary Examiner, Art Unit 2111